

Blood Pressure Control



Below, a model is demonstrating use of the E-2000™ Neck Baro Reflex System developed for NASA by Engineering Development Laboratory, Inc. (EDL), Newport News, Virginia. The device was invented by EDL

president Ross L. Goble, a former NASA engineer.

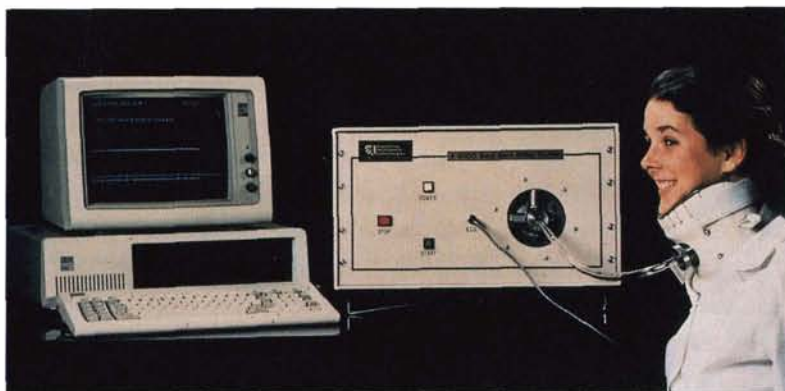
The E-2000 system was developed for cardiovascular stud-

ies of astronauts, who experience greater than usual blood pressure and heart rate instabilities while weightless, suggesting that microgravity may impair the body's normal blood pressure controls.

tus and other conditions in which blood pressure reflex controls behave abnormally. EDL has delivered a number of commercial E-2000s to hospitals, universities and physiology laboratories in the U.S. and abroad.

The E-2000 consists of the neck cuff, a motor-driven bellows for delivering stimulus and a PC-controlled electronic system. In 1991, EDL introduced the advancement pictured **at bottom**: the Programmable Pressure Controller-1000 or PPC-1000™. This system is based on the E-2000, but EDL substantially refined the technology to produce a new device that is less expensive and more versatile than the E-2000.

As its name indicates, the PPC is a controller that provides an accurate means of generating pressure for a broad array of laboratory applications. It can be used as a blood pressure research system with arm and leg cuffs



A space-qualified version of the E-2000 is being used regularly on Space Shuttle missions to study blood pressure reflex controls and the possibility of "resetting" such controls by stimulation; the system stimulates the carotid arteries by electronically controlled applications of pressure to the silicon/latex neck cuff pictured.

The civil applications of the system were apparent from the start and EDL developed a parallel version intended as a research tool for studies of patients with congestive heart failure, chronic diabetes melli-

as well as the neck cuff, for monitoring any part of the body. EDL is also developing an improved version of the E-2000 known as the E2010™ Barosystem. The E2010 does not need a PC; the computer is integral. •

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